### AERIAL SURVEYS AND MAPPING OF WATERBIRD DISTRIBUTION AND ABUNDANCE FOR IMPACT ASSESSMENT OF POTENTIAL OIL DEVELOPMENT ON YUKON FLATS NATIONAL WILDLIFE REFUGE, ALASKA

by

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Data and conclusions presented here are preliminary and are not for publication or citation without permission from the authors.

# Table of Contents

<u>Pa</u>	ge
Abstract	ii
List of Figures i	ii
List of Tables	iv
List of Appendices	v
Introduction	1
Study Area	2
lethods	3
Results	5
Discussion	6
Summary	9
cknowledgements	10
iterature Cited	11

#### Abstract

We surveyed waterbirds by fixed-wing aircraft on Yukon Flats National Wildlife Refuge, Alaska from 29 May to 1 June 1991 to determine distribution and abundance for minimizing impacts of potential oil development on private lands within the refuge. obtained point locations and calculated population estimates for species within the Yukon Flats Duck Production Survey Stratum (18,771 km<sup>2</sup>). We calculated brood population estimates and distribution from data obtained by helicopter survey of 30 1-mi2 plots from 6 July to 9 July 1991. We estimated  $482,970 \pm 61,852$ (95% CI) ducks and 15,353  $\pm$  5,767 (90%CI) broods. Density of adults and broods was 28 and 0.9/km<sup>2</sup>, respectively. Based on analysis of 1989 and 1990 aerial survey data, approximately 80% of the population was within the duck production stratum during those years. During 1991, approximately 44% of the duck population within the duck production stratum was on federal land versus 56% on non-federal land. We mapped waterfowl density distributions for major species and species groups as shaded polygons using 3 dimensional terrain modelling software. distribution maps will provide managers with detailed information for reducing impacts of potential oil exploration and development to waterfowl. Waterfowl distribution computer coverages were produced for incorporation into the Division of Realty's Alaska Priority System model for evaluating private lands within the refuge for acquisition priority.

## List of Figures

- Figure 1. Yukon Flats National Wildlife Refuge boundary, villages and major rivers.
- Figure 2. Location of federal and non-federal land on Yukon Flats National Wildlife Refuge, Alaska.
- Figure 3. Yukon Flats Duck Production Survey Stratum.
- Figure 4. Historic Alaska Yukon waterfowl breeding population survey flightlines for Yukon Flats stratum.
- Figure 5. 1989 and 1990 expanded breeding pair survey flightlines within Yukon Flats National Wildlife Refuge, Alaska.
- Figure 6. 1991 intensified breeding pair survey flightlines within Yukon Flats National Wildlife Refuge, Alaska and the Yukon Flats Duck Production stratum.
- Figure 7. Three strata design for population estimates.
- Figure 8. Five strata design for population estimates.
- Figure 9. 1991 one square mile helicopter duck production survey plots.
- Figure 10. Locations of all ducks observed during an aerial survey of Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Figure 11. Relative density of indicated total numbers of all duck species on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Figure 12. Relative density of indicated total numbers of all ducks on federal versus non-federal land on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Figure 13. Waterfowl brood densities on plots surveyed by helicopter in July 1991. Note: Plots are shown larger than actual size here.

# List of Tables

- Table 1. Waterbird population estimates within the Yukon Flats Duck Production Stratum, Alaska in June 1991.
- Table 2. Waterbird population estimates within the Yukon Flats Duck Production Stratum, Alaska in June 1990.
- Table 3. Waterbird population estimates within the Yukon Flats Duck Production Stratum, Alaska in June 1989.
- Table 4. Relative importance of federal land versus non-federal land based on waterbird population estimates within the Yukon Flats Duck Production Stratum, Alaska in June 1991.
- Table 5. Relative importance of the Yukon Flats Duck Production Stratum, Alaska based on percent of waterbird population inside and outside the stratum, and inside the refuge boundary in June 1989 and June 1990.
- Table 6. Estimated number of waterbird broods and young from helicopter survey of 30 1-mi<sup>2</sup> plots within the Yukon Flats Duck Production Stratum, Alaska from 6 July to 9 July 1991.

### List of Appendices

- Appendix 1. Relative density of indicated numbers of breeding ducks of all species on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 2. Locations of dabbling ducks observed during an aerial survey of Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 3. Relative density of indicated total numbers of all dabbling ducks on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 4. Relative density of indicated numbers of breeding dabbling ducks on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 5. Locations of diving and miscellaneous ducks observed during an aerial survey of Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 6. Relative density of indicated total numbers of all diving and miscellaneous ducks on Yukon Flats
  National Wildlife Refuge, Alaska in June 1991.
- Appendix 7. Relative density of indicated numbers of all breeding diving and miscellaneous ducks on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 8. Locations of mallards observed during an aerial survey of Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 9. Relative density of indicated total numbers of mallards on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 10. Relative density of indicated numbers of breeding mallards on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 11. Locations of green-winged teal observed during an aerial survey of Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 12. Relative density of indicated total numbers of green-winged teal on Yukon Flats National Wildlife Refuge, Alaska in June 1991.

- Appendix 13. Relative density of indicated numbers of breeding green-winged teal on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 14. Locations of American wigeon observed during an aerial survey of Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 15. Relative density of indicated total numbers of American wigeon on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 16. Relative density of indicated numbers of breeding American wigeon on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 17. Locations of northern pintails observed during an aerial survey of Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 18. Relative density of indicated total numbers of northern pintails on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 19. Relative density of indicated numbers of breeding northern pintails on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 20. Locations of northern shovelers observed during an aerial survey of Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 21. Relative density of indicated total numbers of northern shovelers on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 22. Relative density of indicated numbers of breeding northern shovelers on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 23. Locations of canvasbacks observed during an aerial survey of Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 24. Relative density of indicated total numbers of canvasbacks on Yukon Flats National Wildlife Refuge, Alaska in June 1991.
- Appendix 25. Relative density of indicated numbers of breeding canvasbacks on Yukon Flats National Wildlife Refuge, Alaska in June 1991.